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42.

THE IROQUOIS THEATER DISASTER

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THE INLAND ARCHITECT AND NEWS RECORD

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CONTENTS.

EDITORIAL:

Attention called to Theater Construction by the Iroquois Theater Disaster at Chicago—The Dangerous Condition of Theaters in Small Towns 41

THE IROQUOIS THEATER DISASTER AT CHICAGO 42
By Robert Craik McLean.

LETTER FROM JAMES R. WILLETT REGARDING FIRES IN THEATERS 42

THE ART AND INFLUENCE OF WILLIAM MORRIS 43
By Joseph Twyman.

RAMBLES IN AND ABOUT FLORENCE—HER ART TREASURES AND THE CAMPANILE 45
By J. E. O. Pridmore.

REINFORCED CONCRETE AS A FIREPROOFING MATERIAL 47

REVISED SCHEDULE OF CHARGES OF THE AMERICAN INSTITUTE OF ARCHITECTS 47

OUR ILLUSTRATIONS 47

INDEX TO ADVERTISEMENTS IX

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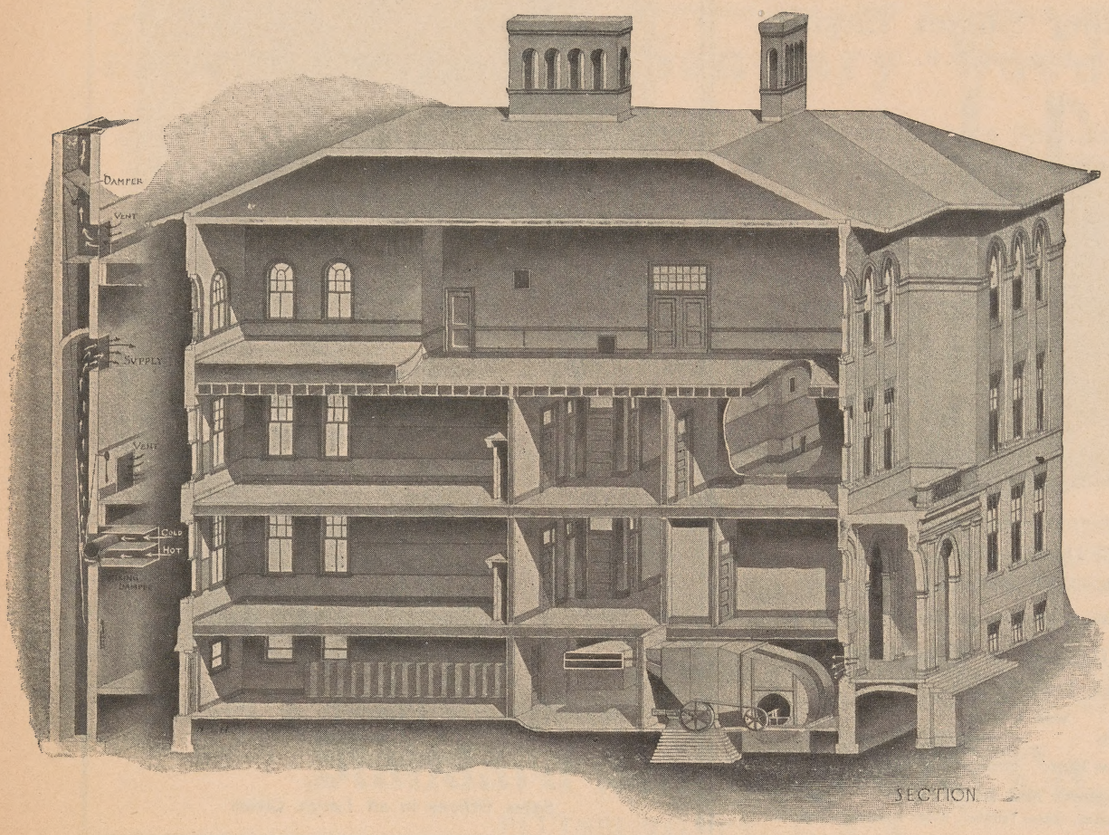

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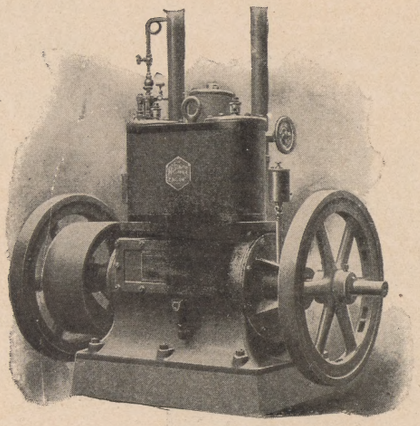

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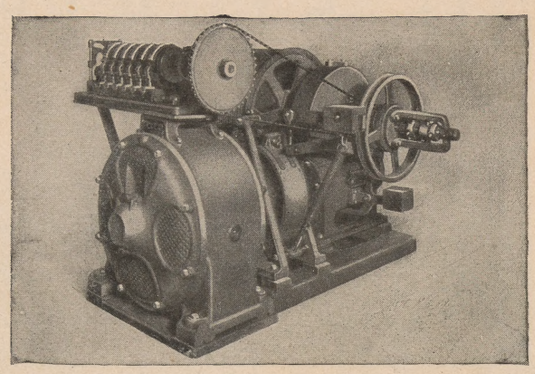

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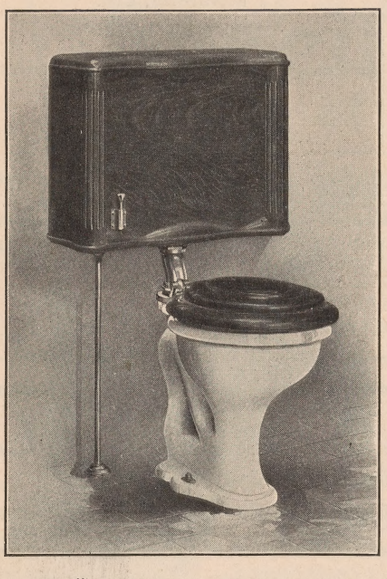

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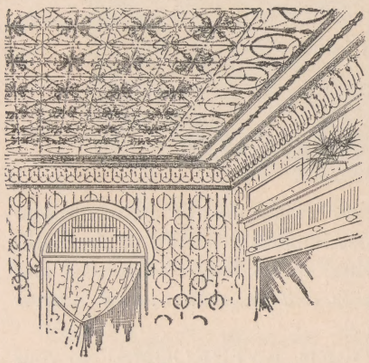

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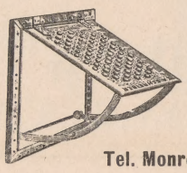

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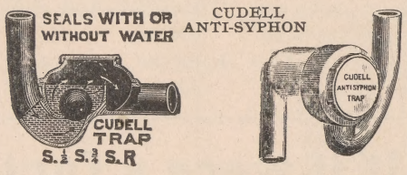

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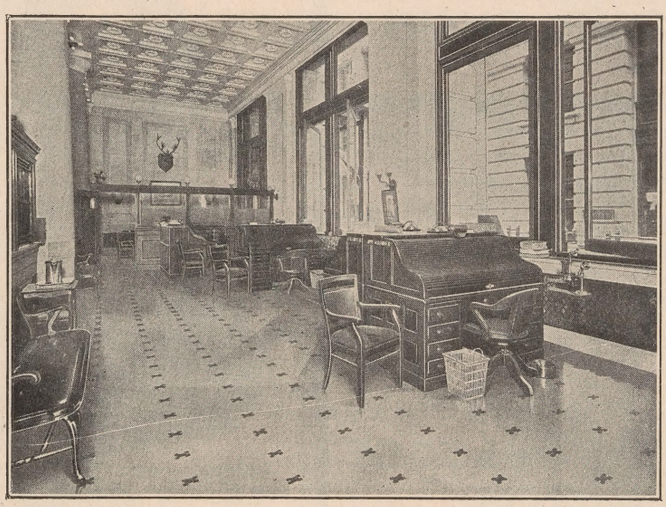

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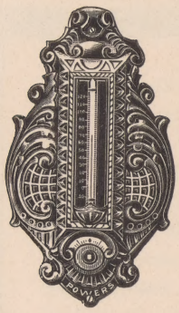

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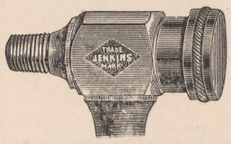

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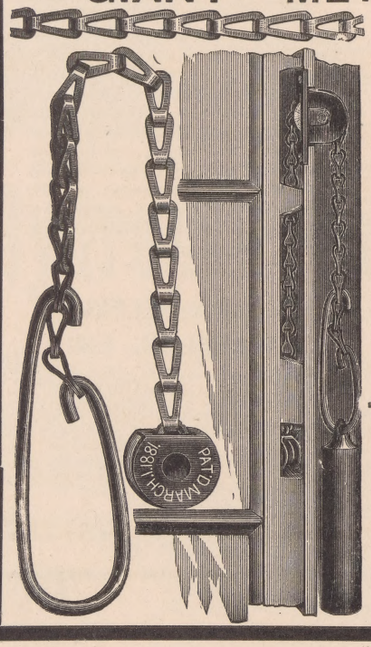

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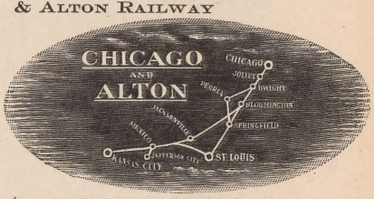

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INDEX TO ADVERTISEMENTS.

	Page
Architectural Drawing.	
Deane, E. Eldon	XV
Architectural Iron Works.	
The Winslow Bros. Co	II
Brown Bros. Mfg. Co	V
American Sidewalk Light Co.	IX
Architectural Photographers.	
Taylor, J. W.	II
Architectural Views.	
Taylor, J. W.	II
Boats.	
W. H. Mullins	X
Boiler Covering.	
The Keasbey & Mattison Co.	XII
Bricks (Pressed).	
Chicago Hydraulic Press Brick Co	IX
Findlay Hydraulic Press Brick Co	IX
Illinois Hydraulic Press Brick Co	IX
Kansas City Hydraulic Press Brick Co	IX
Menominee Hydraulic Press Brick Co	IX
Omaha Hydraulic Press Brick Co	IX
St. Louis Hydraulic Press Brick Co	IX
Brick (Enameled).	
Hydraulic Press Brick Co	IX
Brick (Ornamental).	
Chicago Hydraulic Press Brick Co	IX
Findlay Hydraulic Press Brick Co	IX
Hydraulic Press Brick Co	IX
Illinois Hydraulic Press Brick Co	IX
Kansas City Hydraulic Press Brick Co	IX
Menominee Hydraulic Press Brick Co	IX
Omaha Hydraulic Press Brick Co	IX
Builders' Hardware.	
Orr & Lockett	XVI
The Yale & Towne Mfg. Co.	XVI
Builders' Sundries.	
The Yale & Towne Mfg. Co.	XVI
Building Papers.	
Cabot, Samuel	XII
Cements.	
French, S. H., & Co	VI
Clothes Dryers.	
Conduit.	
National Fireproofing Co.	36
Cordage.	
Samson Cordage Works	XVI
Creosote Stains.	
Cabot, Samuel	XII
Drawing Material and Implements.	
Abbott, A. H., & Co.	XII
Electric Plants.	
Westinghouse, Church, Kerr & Co	IV
The Westinghouse Machine Co	IV
Elevators.	
Link Belt Machinery Co	XII
The J. W. Reedy Elevator Co	XIII
Elevator Supplies.	
Elevator Supply & Repair Co.	XIII
Engineers.	
Westinghouse, Church, Kerr & Co	IV
The Westinghouse Machine Co	IV
Fireproof Doors.	
Kinnear Mfg. Co.	X
Fireproof Shutters.	
Kinnear Mfg. Co.	X
Fire Extinguisher.	
Fireproofing.	
Associated Expanded Metal Co's.	VI
National Fireproofing Co	XIV
Pioneer Fireproofing Co.	XIV
The Roebling Construction Co.	XII
Floor Polish.	
Butcher Polish Co	X
Gas Engines.	
Westinghouse, Church, Kerr & Co	IV
The Westinghouse Machine Co	IV
Grilles.	
Hardware.	
The Yale & Towne Mfg. Co.	XVI
Heating.	
B. F. Sturtevant Co	III
Heating and Ventilating Apparatus.	
Pierce, Butler & Pierce	XVI
B. F. Sturtevant Co	III
Kellogg-Mackay-Cameron Co.	XI
Hollow Block.	
National Fireproofing Co.	36
Ice and Refrigerating Machinery.	
Westinghouse, Church, Kerr & Co	IV
The Westinghouse Machine Co	IV
Interior Finish.	
Locks.	
The Yale & Towne Mfg. Co.	XVI
Mail Chutes.	
Cutler Manufacturing Co.	XIII
Mechanical Stokers.	
Westinghouse, Church, Kerr & Co	IV
The Westinghouse Machine Co	IV
Metal Ceilings.	
Berger Mfg. Co	VI
Metallic Fixtures and Furniture.	
Monuments.	
Mortar Colors.	
French, S. H., & Co.	VI
Moldings, Mirrors, Frames.	
W. W. Abbott	IX
Paints, Oils and Varnishes.	
Berry Bros	VIII
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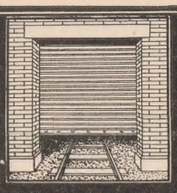

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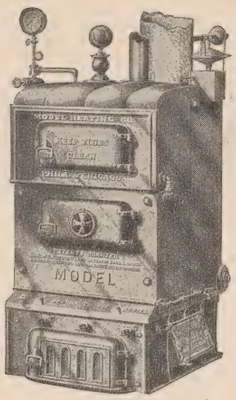

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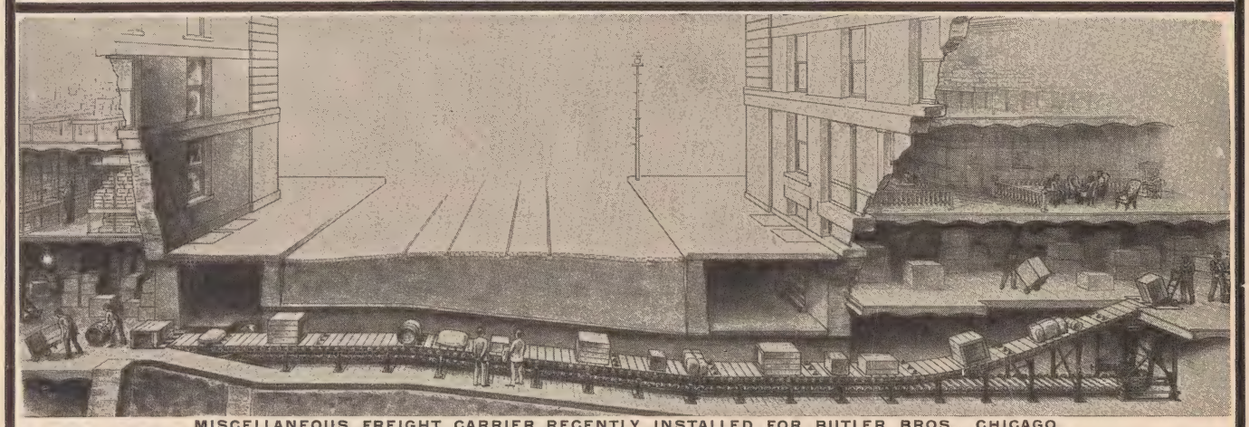

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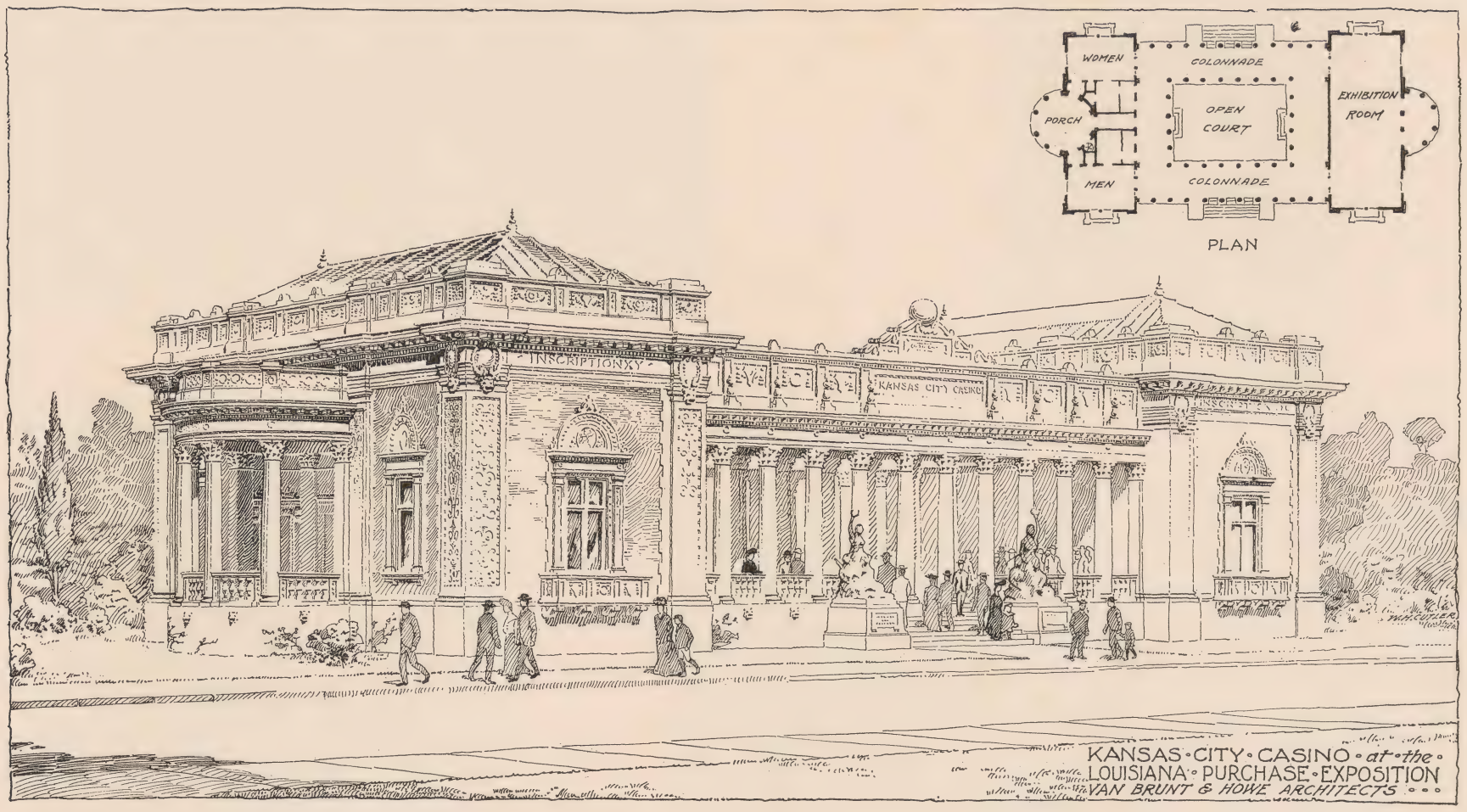

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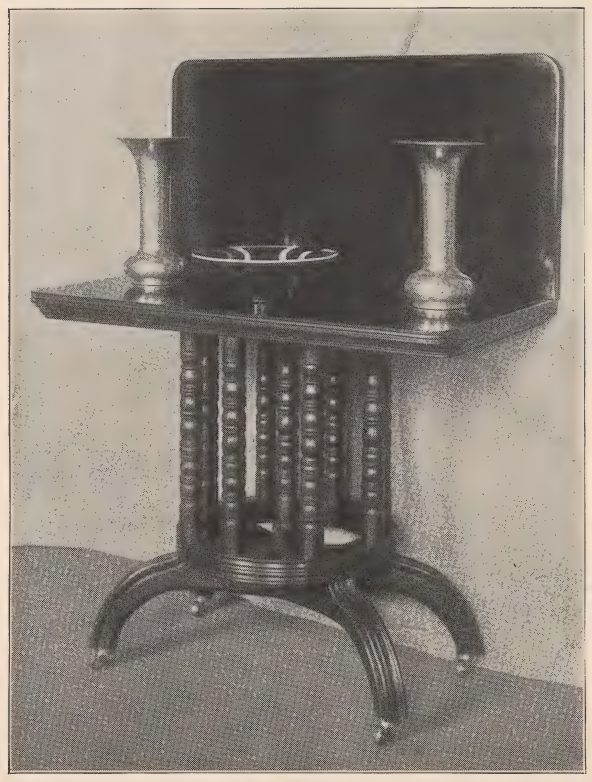

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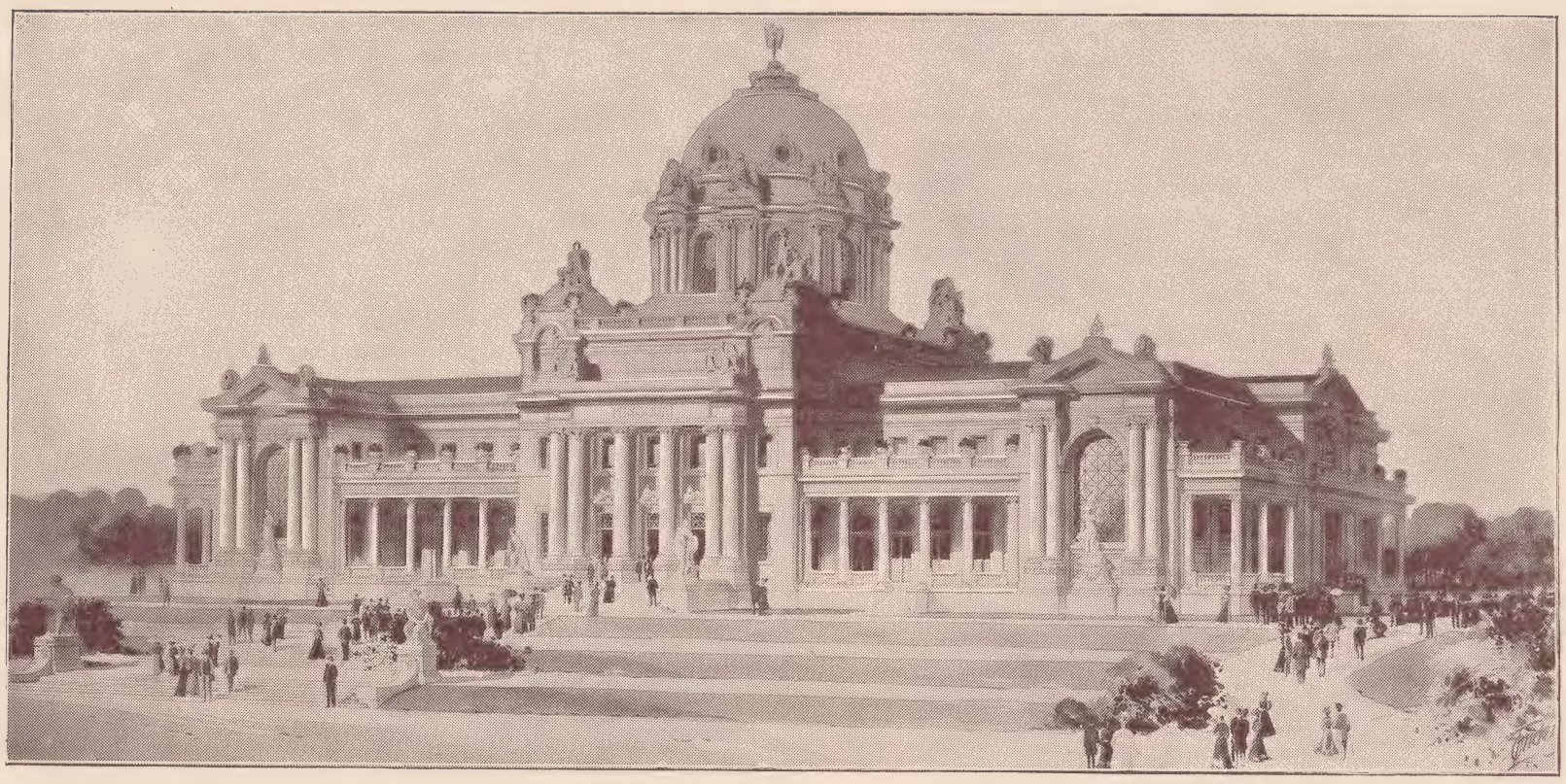

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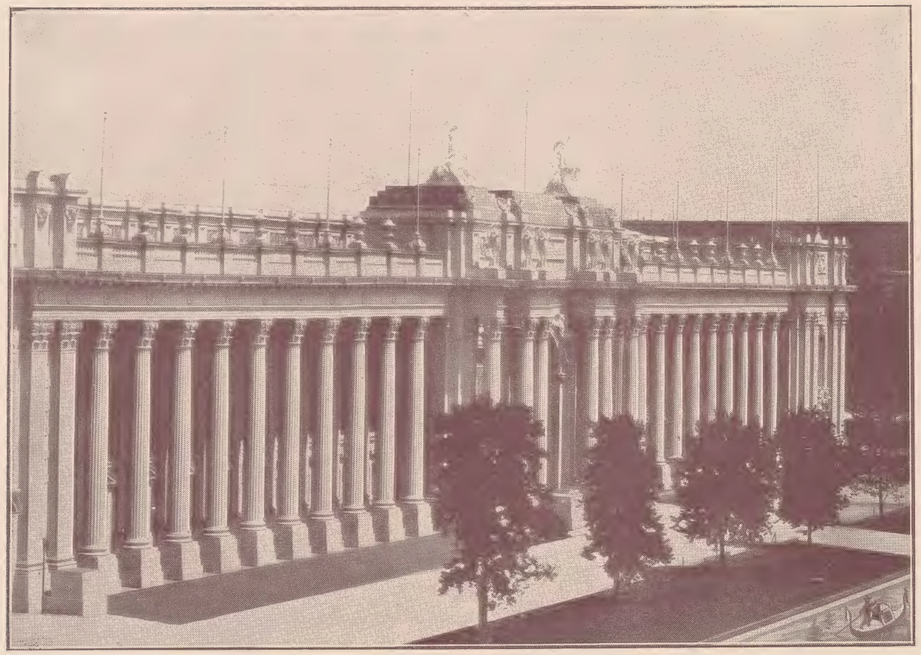

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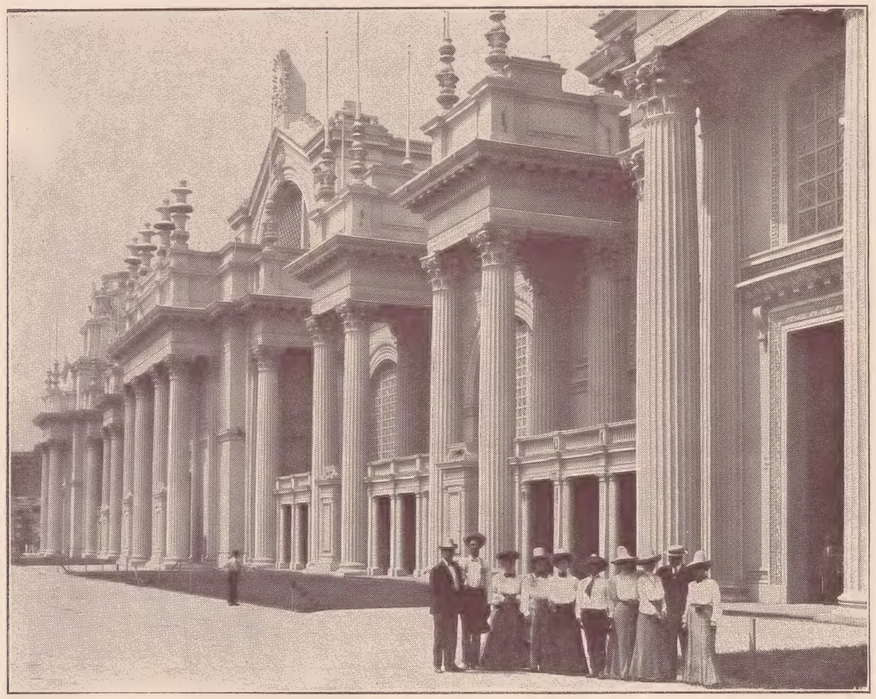

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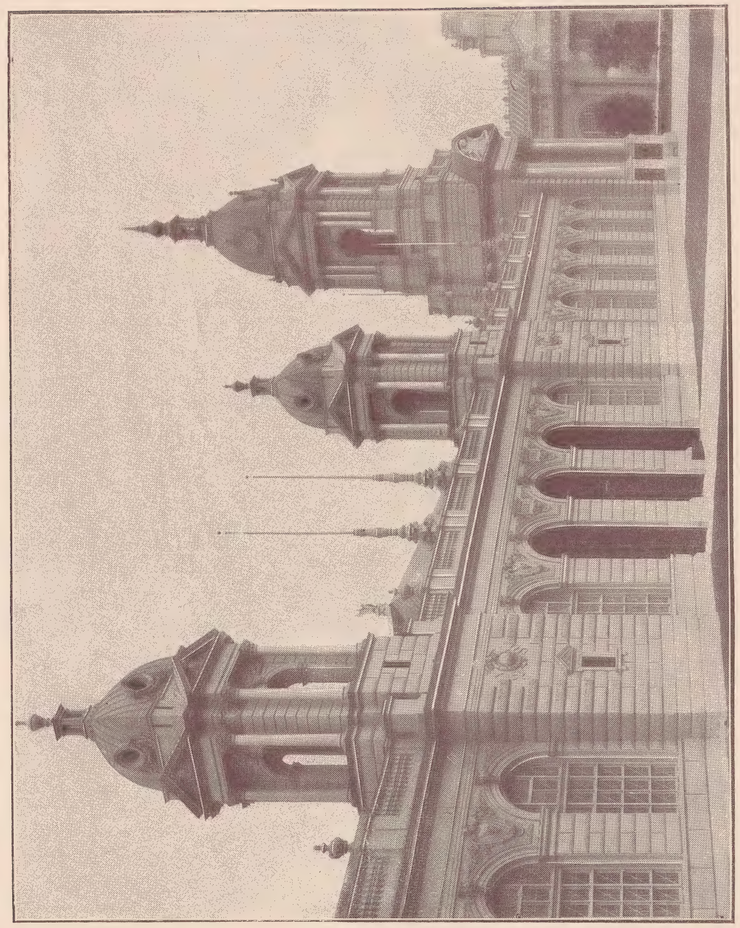

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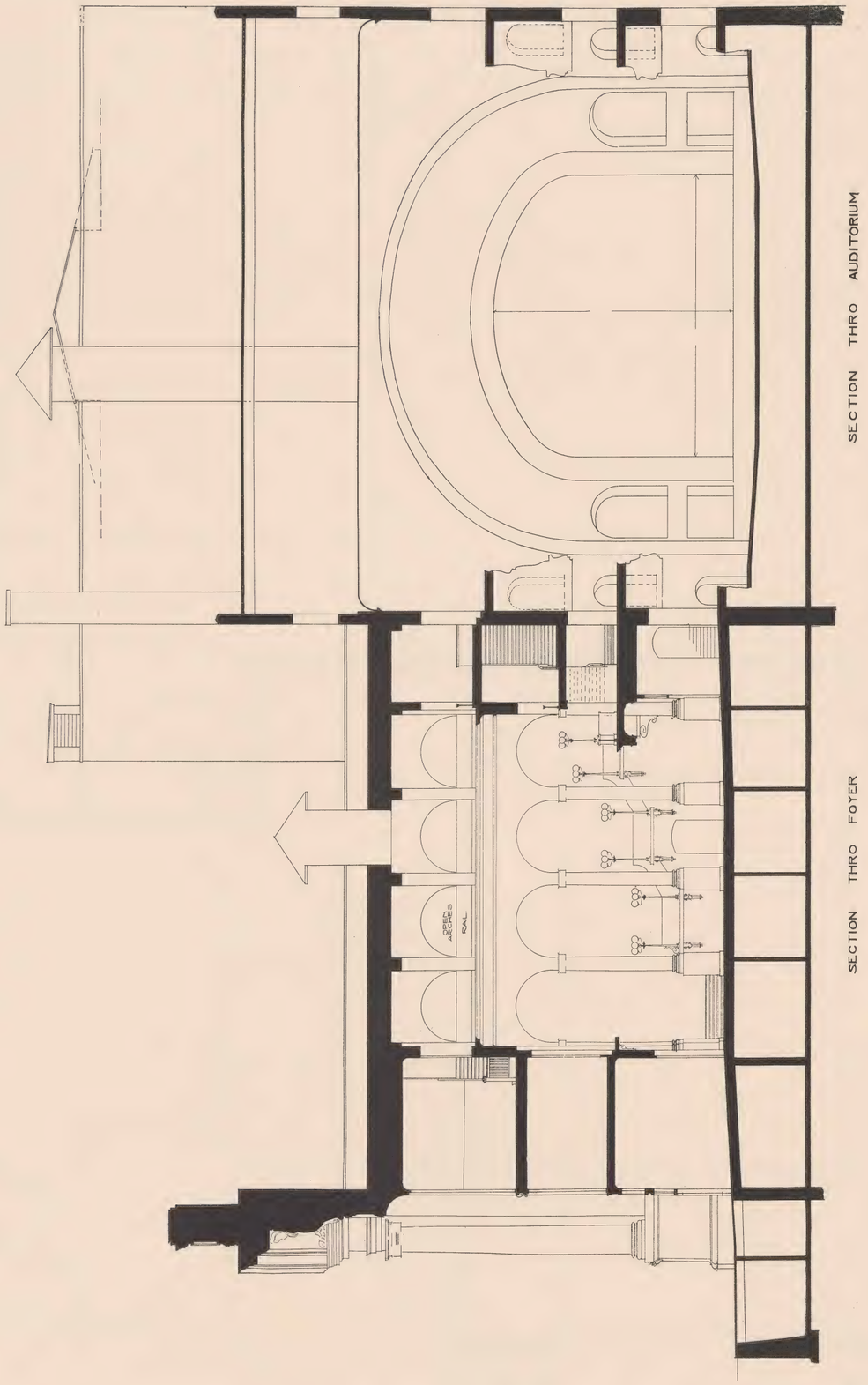

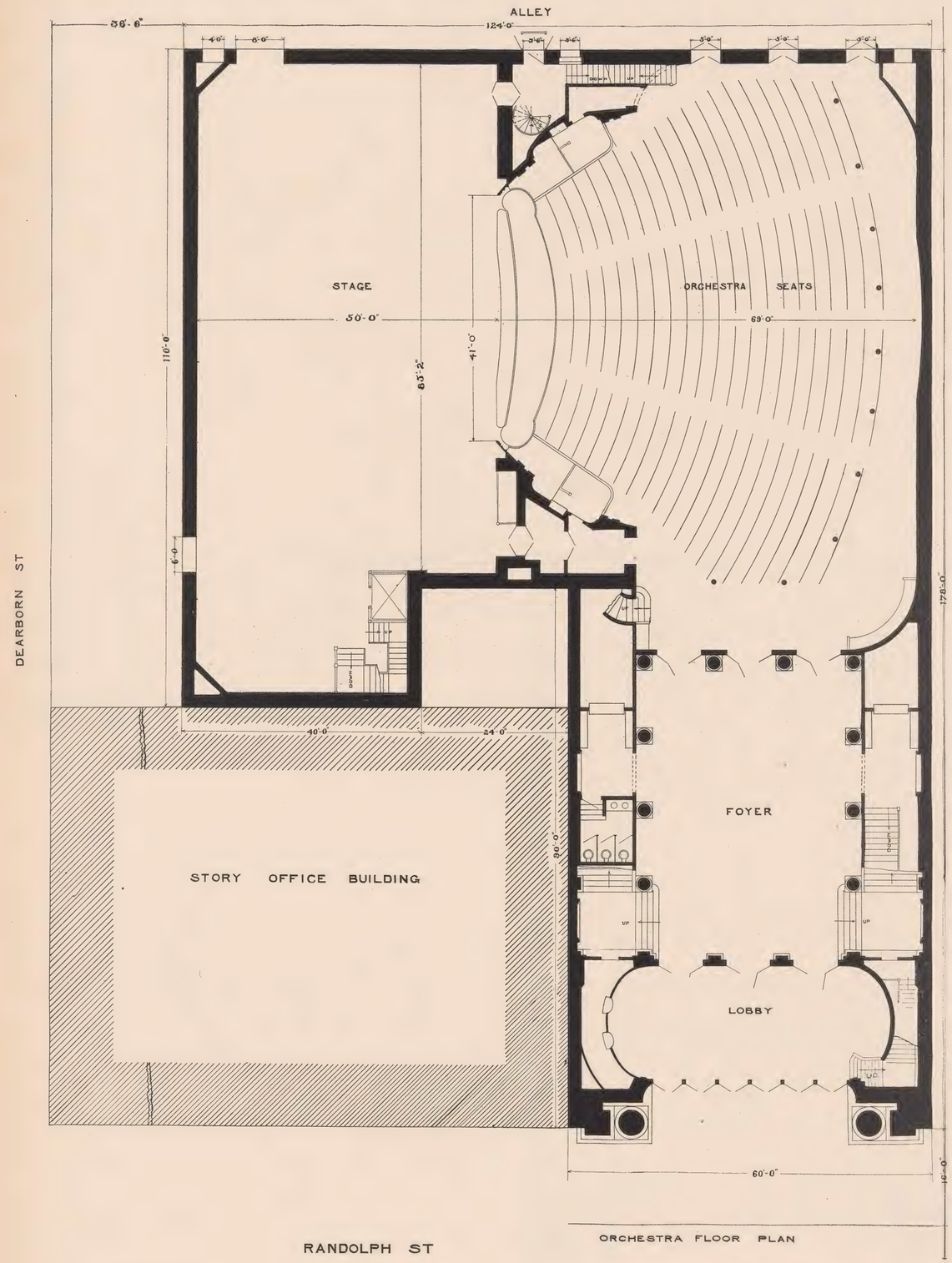

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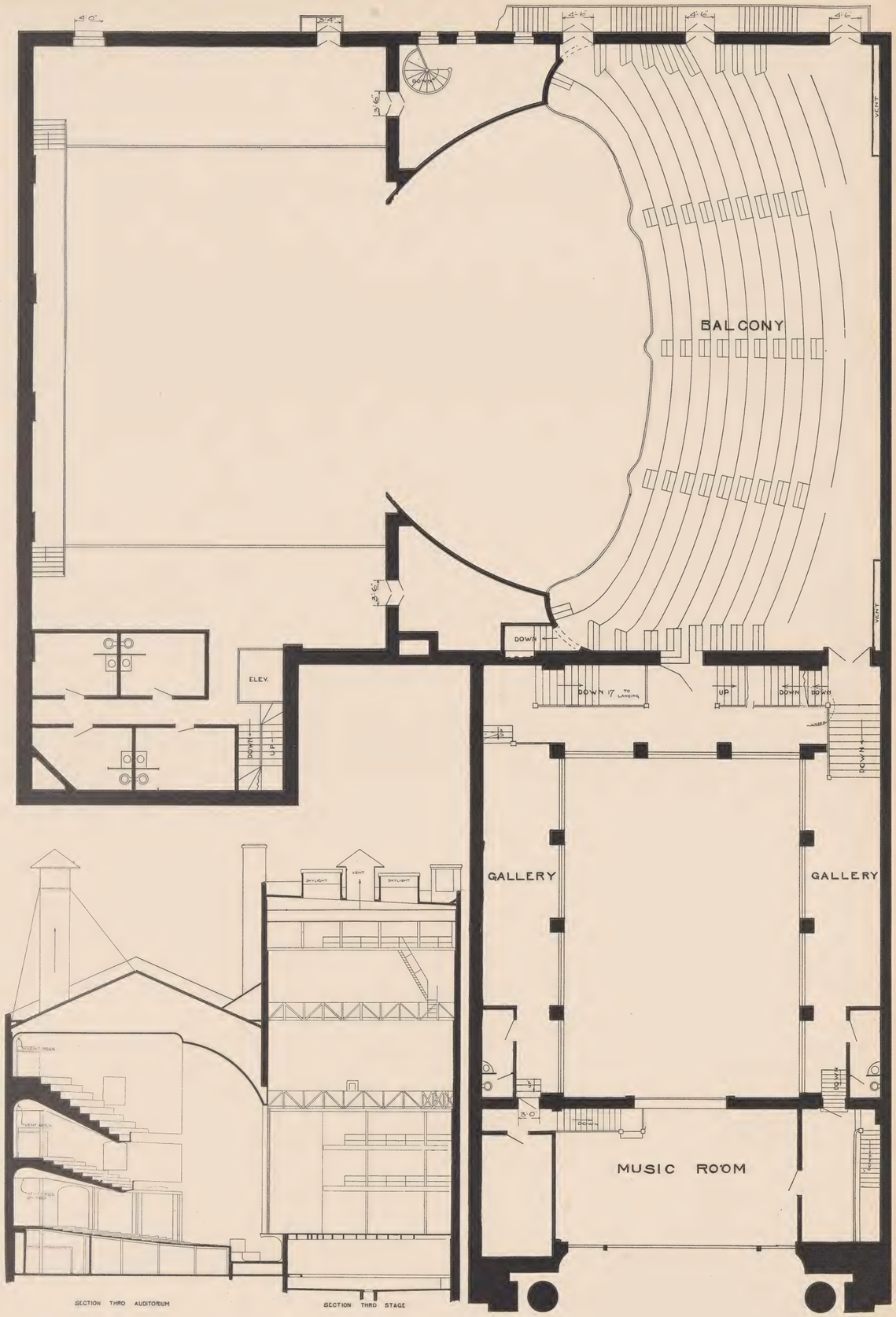

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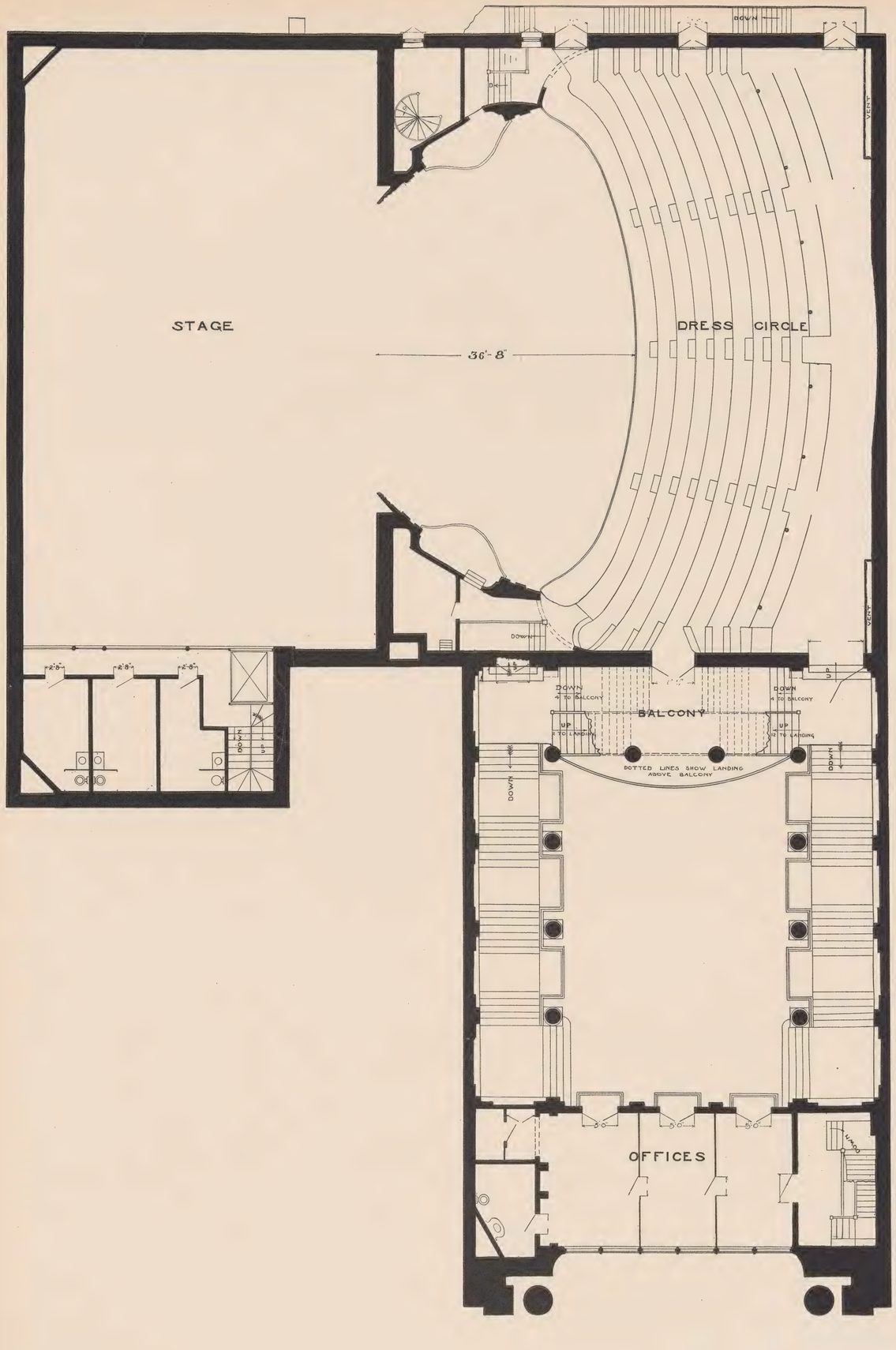

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Vol. XLII. JANUARY, 1904. No. 6

A Monthly Journal Devoted to

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TERMS: Regular number, $5 a year; Photogravure edition, $10 a year. Single copies, Regular number, 50c.; Photogravure edition (including 7 photogravures), $1. Advance payment required.

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Attention Called to Theater Construction.

The great disaster, unparalleled in extent and horrible in its details, that occurred in the Iroquois Theater, in Chicago, on December 30, calls attention to the auditoriums of the world, their plan, construction and, more important even than these, their management. Most cities and towns have building ordinances that serve as a general restraint if not a guide to the construction of theaters. There are the general rules regarding construction and material, then those that concern ventilation, fire prevention and exits, the width of aisles and the seating capacity, etc., all limited by law. But there are no laws that reach further and prohibit the construction of a theater upon an unsuitable lot or give general requirements which would prohibit the use of such when completed. Following this disaster there is of course a great "locking of barns." Perils are seen where none were before observed, and the public has suddenly awakened and found that laxity and incompetence even to criminal carelessness has been the rule, and that of all the laws upon which the public relied for safety some have been dead letters for years and others evaded or ignored. This theater was no better nor worse than the better class of modern playhouses. Its faults were the faults of all and its lesson is therefore general in its scope. To the architect it means that he can well afford to refuse to design a theater for a lot that does not admit of that plan that will give greatest safety to the audiences that will gather within. A theater is composed of two parts, its auditorium and its stage. These should be separated by a stable, incombustible curtain, which in effect is a partition. The auditorium should have streets or alleys on at least three sides, the stage on at least two sides, and the main lines of exits should be continuous with the aisles leading from the stage, with entrances which can not be locked leading (without steps) into foyers or corridors that will hold the entire seating capacity of the part of the theater with which they connect. When this is done; when the architect has made a natural plan instead of an ingenious one, then the almost certain laxity of inspection by public officials and careless management will not place the lives of thousands of people in jeopardy. The present condition of theaters and theater buildings has been known for years; enough laws have been passed and ordinances formulated to fill almost every requirement, and architects have studied the subject from the stadiums and forums of Greece and Rome to the Grand Opera House. But the ordinances are not enforced. The architect does not think of refusing to design, but exercises his greatest ingenuity to produce a beautiful façade and interior. Then, when a disaster like the present startles the world, there is censure and surprise on every hand, when it is only the inevitable that has at last happened. While almost every evil of construction and fittings can be found in the average city theater, it is probably the "opera house" of the country town that is the most dangerous. Here it is *the* opera house. An exceptional performance is attended by a large proportion of the citizens, yet it is very seldom that these citizens have made any effort toward securing a safe and well-conducted auditorium. While there are well-designed and safe theaters, as a rule the construction is wood, the stage a dirty box with dirtier dressing-rooms, and a place below that is filled with the refuse of years, and a match carelessly thrown would produce a conflagration. The exits are inadequate and often open on to narrow halls and steep stairs. The stage hands are the loafers of the town who smoke and play cards around the stage or beneath it all day, and it is not seldom that the manager does not visit the stage once a week. These deathtraps should be abandoned. Lots should be selected where every safeguard can be included in the construction of the one place of public amusement, and then in both city and town the chief executive should, by State enactment, be held personally responsible for any infraction of the laws governing theater construction or maintenance.

THE IROQUOIS THEATER DISASTER AT CHICAGO.

BY ROBERT CRAIK M'LEAN.

THE fire which occurred in the Iroquois Theater, in Chicago, on December 30, 1903, sacrificing 598 lives, has awakened the profession generally to a sense that there is possibly room for improvement in the planning of theaters, and the question is asked how such a calamity could occur in a well-appointed theater, and, if so, is not some radical change necessary in the planning of theaters and auditoriums?

The answer to this question may be found in the plans published in this number of The Inland Architect, which are traced from the architect's blue-prints as approved by the city building department and remain as they are in the originals in the auditorium and stage proper. But changes are made in the architect's drawings from sketches approximately correct, made by a member of the mayor's investigating committee, in the stairways back of boxes, and in the foyers and main entrances to make the plans conform to the building as really constructed.

It is but just to say that the Iroquois Theater was built with a view to advancing the grade of theaters in Chicago in general, and the owners are to be commended for their ambition to elevate the stage along ethical lines, and in spaciousness and decorative beauty to give to the city a playhouse of which it could be proud, and the architect gave to the planning all the ingenuity and artistic talent called for by the problem. It can be taken for granted that in general this theater was if anything above the average in all its requirements, and that the sins of omission and commission that may be discovered from the plans shown and facts set forth are common to the most of theaters and in a large proportion accentuated in one particular or another, which makes the example set all the more forcible. This is stated, not in extenuation in any degree, but that no indication of prejudice or bias may mar what is intended to be a plain statement of actual facts for the benefit of the profession.

It was at the holiday matinee, attended by 1,606 (official) or about 2,000 by estimate, largely composed of parties of women and children, toward the end of the second act in a spectacular production in which a large amount of scenery was used in producing spectacular effects. The house was new, having been opened to the public but a few weeks. The scenery was new and extraordinary in quantity. A light, probably an electric flood light, in some way set fire to a fringe of scenery twenty feet above the stage. The operator of the light sought to extinguish the blaze with his hands, but it quickly reached other scenery. A fire extinguishing compound was on the stage, but it is not definitely known if use of this was even attempted. In a few seconds the entire scenery was a mass of flames. A curtain, that is reported in the newspapers as asbestos, was lowered, but caught and stuck. Even this is not clearly shown, as at this writing the coroner's jury has not summed up its evidence. Then came the rush for exits, followed by the sheet of flame and, probably more destructive, the gas and smoke from the burning scenery. When the fire department arrived, some ten minutes after the fire started, its seeming tardiness owing to there being no fire alarm in the house and the call sent from a store some distance away, but little trouble was experienced in extinguishing the flames. The structure was not injured, the damage being confined to the stage fittings, house furnishings and decorations. The dead, according to the official list, was 565, the injured reaching several hundred. The newspapers give the list of dead to date 598.

The conditions which contributed to the disaster were:

First.— The lack of a fireproof curtain, as provided for by city ordinance. Evidence shows that a curtain of some composition was hung where a fire curtain would naturally be placed. The morning after the fire, when the entire interior was carefully inspected by the editor of The Inland Architect, the proscenium arch was as "clean as a bone." A policeman was asked, "Where is the asbestos curtain?" and he replied in all seriousness, "It was burned up. There's the rods of it lying on the stage." A curtain by any other name would have burned no more completely.

Second.— The general plan of the house and in detail the foyer and stairs should be mentioned, and these are fully shown in the plans.

Third.— The absence of light in the auditorium. When the fire started it was a "moonlight" scene, and to give proper effect to the colored lights, the house lights, which were, of course, electric, were turned off, and even when the turning of a switch would have done it, the electrician, whose place throughout the performance should be at the switchboard, did not turn them on.

Fourth.— Ventilators. The ventilators as shown in the plans were not open, according to the best evidence obtainable, though if open the draft from the stage doors that were thrown open overcame the upward draft in the absence of an adequate curtain, and threw the flames to the exits at the opposite end of the interior.

Fifth.— The violation of ordinances, not only in having no fire-resisting curtain, the absence of automatic sprinklers about the stage, etc., but in the cutting off the top gallery stairs by a locked door at the foot of a narrow stairway. The entrance to this is seen in the plan opposite the box office, and patrons of the second balcony ascended this, but the door was locked before the close of the performance, and returning they reached the street by other stairways. There was no barrier placed to prevent descent by these stairs.

Sixth.— This may be summarized in the word *remiss-management.* This was the darkness, the closed ventilators, the stampede of an audience that was without direction by house employes, and most disastrous in its results when it reached to closed doors that stopped the audience. Some were latched, some held by floor catches it is certain, and it is probable that most of the exits were closed in this way when the fire started and there was no one on duty to open them. It may never be known with certainty how far this extended, for the ushers were boys of seventeen years and under, and as there had never been a drill or special instructions issued in regard to emergencies, they made their escape at the first alarm.

Seventh.— The plans show the fire escapes which were placed on the alley side. The doors to these were of course closed, and the French window construction is said to have augmented the fatality. Especially as the outside iron shutters only opened halfway and when open stopped the stairway from above. There were no "exit" signs on any door about the theater.

A most important feature and an explanation of much, is that the theater was opened to the public before it was *complete.*

These are the main facts as reduced from masses of conflicting evidence and the story told by the destroyed interior the day after the disaster. The absence of a fire alarm in the theater and all "first aids" in extinguishing fire, the plush-covered seats, stuffed with a sort of hay or sea grass, all contributed to the general disaster that has startled two continents and will, it is hoped, in its effect revolutionize and regulate the future construction and maintenance of the theaters and auditoriums of the world.

CORRESPONDENCE.

THE IROQUOIS THEATER FIRE.

Editor Inland Architect: Chicago, January 5, 1904.

In compliance with your request, I write to you in regard to fires in theaters.

After each and every considerable fire there are a number of recommendations made, such as, that the theater should be isolated, that there should be an ample number of exits, etc., and other rules well known to experts and which should be enforced. It is unnecessary to repeat them.

It is the inexperience of the public that is the main difficulty to be removed. Such experience must be taught in advance or else the greatest of the dangers will still exist.

Having a sufficient number of exits in existence, then it is to be recommended that each and every exit should be used after every performance and the public be taught (and if necessary, compelled) to depart through the exit that is nearest to them. As it is, all that the patrons practically know about exits is usually the main entrance, and when a panic arises they naturally rush for it, whereas if they had to go out through separate entrances they would have the experience that would be needed in case of a fire.

Moreover, the exits would necessarily be kept free from obstruction, which is never the case with passages that are seldom if ever used. Very respectfully, James R. Willett.

THE ART AND INFLUENCE OF WILLIAM MORRIS.*

BY JOSEPH TWYMAN.

IN forming an estimate of the art of William Morris, we have to detach ourselves from all formalisms, all academic and stereotyped standards of criticism, all prejudice; for it was a *new art,* and it was the starting point from which that great wave of art interest swept over the continent of Europe, more than thirty years ago, to find concrete evidence in what is best known to us to-day as the "secessional" *art* in Germany and "l'art nouveau" in France, here and elsewhere. The secessional movement or l'art nouveau has not yet found its place in the world; nor has the art of the originator. It came from him upon the world like a flash of lightning appearing in a heavy-ladened, troubled sky; a flash so bright as to be most blinding, and so bright as to illumine the earth from then to now, and still on into an immeasurable distance of futurity. The use of this word art here is to be interpreted in its broadest sense — neither from the philosophies of the estheticians nor from its present day, or popular, acceptance, for both of these are changing, and will change as all things are wont to change in human experience. *Art* has not found its place, even though, to our understanding, things called art have been seen, spoken and heard of for thousands of years. The question of what art really is, or what is art and what is not art, I ween is not a definitely settled one. Possibly it may some day be determined that the word is admittedly conversant with all things; so that the art of finance, for example, shall be an accepted term when it shall be that the conduct of financial affairs and commercial affairs is *outside* of the realm of its accepted direction to-day — that of profit — and *into* its *true* intent, *a service* for the whole of humanity's well-being; so that the art of workmanship, in pots and pans for common use, shall mean a well-made pot or pan with a true intent made *paramount — its best service* for the whole of humanity's well-being; so that the thing chosen for certain service shall be well chosen for that service and thus always right; neither out of date, out of fashion, out of place; reflecting honor on the maker of the thing, the seller, the chooser of it and on those who use it. This system of consideration, I may say, in time will lead to an understanding of what art is as readily as we now are enabled to make its claims somewhat certain for architecture and painting and such like.

And I think this would have been Mr. Morris's view if he had been disposed to waste his valuable moments on the subject.

For an art and an influence, William Morris in his achievements gave us this example: Seek high standards of accomplishment and range them before you — no matter what the occupation in life may be — whether merchandizing, manufacturing or financing, or in the study of music or painting, poetry or architecture. Thus your only and permanent safeguard can be against association with things which are not art at all, and which are all too prevalent.

For my own part, I am willing to admit that the more I go into this question of art, searching for definitions, the *word,* its meanings, its characterization, all elude me; it is puzzlingly abstract, till refuge is offered and gratefully reached in the one thought that everything *well done is art.* A pair of shoes well made by hand — the work of a conscientious craftsman, given his own good time for their completion, or the making of a woman's gown on these same terms is art, as is also a well-cooked meal or a finely sculptured nymph.

I believe this to have been Mr. Morris's idea as well as it is my own. His business methods, his literature, his painting, his manufacturing, all point to this conclusion; his craftsmanship, romance writing, socialism, designing and even his religion, all point to this conclusion.

With him art was not a business, a profession or a fashion, any more than mere business or fashion could be art; he would not have it said that his occupation in life was that of artist; *art* is not a vocation, nor is it something to learn; it can not be taught. And this is the basic principle through which we may get our introduction to the art of William Morris and his influence.

I met William Morris in the summer of 1883 at Merton Abbey — just at the time he was thinking seriously of setting up a printing-press of his own, though this intention did not take practical form till 1890. It was perhaps the very busiest time of his life, and though I well remember the lovely ride by rail from Waterloo station along past the old Crystal Palace, and the instructions received at the little station house from the porter there when I asked my way — to "pass through the wicket by the meadow yonder and follow the stream"; and though I well remember the first sight of the buildings that were almost a shrine to me, the tumult of feelings that crowded over me as I entered the little office waiting-room are now as vivid and soul-stirring as on the day of my journey there. I was asked to excuse Mr. Morris for a few moments, while he took leave of some friends who had unexpectedly called on him, so I picked up a sketch-book and happily it proved to be full of original pencil drawings by Edward Burne Jones. Except for this good fortune, moments would have seemed hours, and but that it was the master who interrupted me by his quick, busy entrance and hearty greeting, the book would have been laid down most reluctantly.

This was the one day in the week — Thursday, if memory serves me here — regularly set apart for the customary visit to the works from town, and as he had already been hindered from making his usual rounds of the shops, he invited me to join him without a further delay. "We can talk as we go along," and we did. Out of the office, we burst into a sort of nature's courtyard, from which various buildings were reached, and straightway we stood by a shed in which were placed several painted windows for inspection. "What have you done to this?" he asked, pointing to a figure of Saint Cecilia gowned in sapphire blue and purpled shadows, all bedded in a bower of lemon leaves and fruits. "We changed the blues, sir, as you told us to." "Yes, that is better; darken the foliage under here." "What did you do to this?" and the same question came again and again, for each piece that had been altered according to suggestions made at the previous inspection. We then went up the wooden steps into the long room of the glassworkers; the foreman led us along by the rows of tables, each with its unfinished parts of the painted glass, being "leaded up," growing in glad repeat of its particular cartoon, and each with its earnest workman, who steps aside to let the master criticize or question in familiar and friendly voice. From here we crossed over a velvety turf to a storeroom full of what at this time would appear to be to him the riches of the world; colored silks, fresh from the dyehouse, were heaped on floor and shelves, and here I heard the story of a newly discovered and perfect dye, and the plant from which it came growing in their own soil. To appreciate his enthusiasm on the subject of dyes, it is necessary to know how he had suffered from repeated failures to obtain permanently dyed materials to work with from the professional dyers and how much time and hard labor he had bestowed in studying and experimenting before he reached the perfection he always sought for and found as one new industry was relinquished for another, and another. And thus we moved — not an idle moment, not an empty breath — on, I think next, to the shed with the silk looms, where was weaving the historic "St. James" silk. The purity of this pattern and its lustrous tones are an everpresent delight — its reds, blues, greens, yellows, and blue and maize-yellow combined, and green and green-blue — the colors he dyed for this "St. James" silk and the "Dove and Rose" silk and wool, have never been equaled by the best of Mr. Morris's numerous color imitators. Next we plunged into the room of the famous Hammersmith Rugs — where the pictures grew more slowly, though perhaps more interestingly, than on the tables of the painted glass. One thread at a time was tied in and clipped by patient fingers of working-girls, who chose their wools in copy of colored plans before them. Here my opinion several times was asked as to desirable depths of colors, and instructions given to the workers now and again to gradually change their wools. In then we turned to the block-printing room. I can now picture the cotton and linen cloths stretched flat upon the tables taking the impress of their colored blocks under the hand of the printer. One pattern I clearly recollect, the "Honeysuckle" chintz. It must have been designed about the time he wrote his "Jason," and, old as it is, every new sight of it year after year seems to disclose fresh beauty and interest.

And so, on we went, back again to the green outdoors and the picture yard, to meet one last and lasting symbol of this man's intent; over a bit of the running stream was a platform and a built-up reel, about which hung a length of printed cotton cloth,

*A lecture given before the Chicago Architectural Club at Fullerton Hall, Art Institute, Chicago, December 21, by Joseph Twyman.

thrown over and about for its final rinse, by a man who turned the reel as he shifted the colored stuff. Even the tests — by washing — for the presence of transient dye must be made by the hand of man, that he may not have to stand by a machine day in, day out, and so become, in attitude and mind, as part of the machine itself.

And, as I had grown to love the *work* of William Morris in all the years before I saw him, now on my return to London in his glorious companionship I knew what it was to love *him* and venerate him as the great exemplar of the beauty of work that he certainly was. And in return for the joy his words and deeds have brought into my life, I say that, mixed with the regret that his tongue is now silent and his hands are still, is the deep consciousness that his work, done so nobly and well, lives and will live as a constant new birth of promise for generations yet to come, and an inspiration for each and every one of us to-day.

In this belief of mine I hope you may concede, as preferable to judicial effort, some fair excuse for admiration — though at times it may seem too much unrestrained — and be willing to assume that attitude of detachment required of you in my opening words to the better enable you to form an estimate of this great man's art.

The art of William Morris is the perfected culmination — the third and completing step — in the evolution for adjustment of existing perplexities, both mental and physical, besetting our modern life. Carlisle was the instigator; he saw the needs and exposed them. Ruskin was the preacher; he told us what to do and how to do. Morris was the worker. Carlisle has done his work and found his place — he produced a Ruskin, who in his turn did his work and has had his place allotted him, for he made a Morris. All honor to them both, and we owe them, each one of us, undying gratitude. Without them there would have been no Morris — there could have been no Morris.

The instigator, the encourager or preacher have ceased to be needed; their places are taken, their work carried on, by their own apostle, and it is with him we of to-day have to deal. We have to deal with those whose places are not yet fixed in the world. Not with Homer; all has been said of him. Not with Æschylos; his lessons have been long since learned. Not with Dante; his heaven and hell have passed away. Not even with Shakespeare, for he has ceased to interest the people. We have to deal with Darwin, Huxley, Tyndall, Spencer; and we have to deal with Tennyson, Browning, Swinbourne, Whitman and Morris; not with Michelangelo, but Burne Jones (the workers of to-day). What have these, who are in the measure of their worth still in our midst — what have these to say to us and our children. That is what we are interested in. All of them have but recently spoken and each of them has been but partially heard; none of them are yet wholly understood; and the greatest of them all is understood the least.

Morris made a new art in literature, as well as in decoration. In it he compassed round about every subject relating to intellectual existence and growth, for he touched understandingly on history and legend, on politics and romance, and above all on the art and welfare of his brother man. His style at times flowed like a mighty torrent, steadily and fierce; at times like an ocean, beating wave on wave upon stubborn and ever-resisting shores; at times tender and sweet as a mother's love song; at times with the true, keen sight of a holy seer; prophetic and full of promise, sad at life's miseries, yet hopeful, and always sane.

His art is a clean art, always pure. His books are only fitted for the pure to read. His art is a true art, which I believe is the reason that he gave small time to the easel picture. His vision of what true art should be led him unwittingly into the practice of architecture and decoration. His understanding of true art in architecture and decoration made him declare against the prevalent habit of trying to imitate nature; and by precept and example sought to induce the world to abjure these deceits and to take nature only as motif, inspiration or suggestion, and thereby make beautiful patterns and forms and color combinations of original construction and arrangements with the purpose to give pleasure to the looker-on without having the power to delude.

Morris's art was an honest art, and in this he made, again by his example, craftsmanship once again into art; this I take it to be his greatest service to his time.

William Morris was a lover of the earth, a lover of the beauty of the earth and a lover of mankind. From such a temperament, controlled and guided by desire to express this love, that a fuller sense of delight for others might be engendered, sprang his art, a tangible and completed product. In him was intellectual power and technical power harnessed together, and he used these for the good of the world he wished to make better, and to the persistent use of these forces is due an art comparable only to the best of all ages and an influence more lasting and more valuable than that of the Italian Renaissance in its fairest days.

The greater the man the more difficult it becomes to conceive of the place he is ordained to fill, and as time goes on it is more and more obvious that William Morris was so great that comparatively few have yet been able to place him. He stands as one central figure, whose work has enlisted the ablest effort of the times to interpret it; few have succeeded in associating his ideas of either pattern-drawing, word-painting or life, for while none of these were too noble for the sum of present needs, they were too extended for the sum of present apprehension. His enterprise held to almost every phase of existence — industrial, commercial, intellectual, spiritual — and with so firm a grasp that continuous harvests of its fruits are ever ready to be gleaned. Life has been made more comprehensive through his love of labor, for he labored for life's sake, the gentle influence of his quest for beauty has been demonstrated in that labor. His influence upon the world of art, using this word art in its general application, has been so determined that it could not be exceeded by the example he instituted for the world of letters, though he is said to have invented a new style in literature that requires new canons of art criticism to be formulated and applied to it.

Mr. Morris's art — using the term in its particular and acceptable sense, involving decorative work and literary work and, in fact, all else he did — was eminently sociological; an art meant to be of the people, by the people and for the people; a live art, full of power, vigor and usefulness first; full of justice and truth next, and, last, a perfected art, full of beauty, concord, rhythm.

It may be that some of his biographers would change the order of this enumeration of qualities, choosing to place beauty first, but, underlying the beauty Morris strove for and found, is discovered those accumulative forces without which participation beauty can not endure. And this was life as he saw it and lived it.

At first meeting him, his vigorous usefulness it was that impressed me, and then his candor and earnestness, all leading up to his unwavering love and understanding of the science of beauty. It would appear that it was in this relativity, his ardent desire to serve his fellow man became a practical religion — hence his socialism. Theory could not satisfy his longings; "the idle singer of an empty day" became a stirring, forceful worker of days that were all too short and evanescent. He toiled for the people, not for the sake of doing things, but for the sake of the effect the things he did might have upon the times; he toiled for a betterment of existence. He saw about him a great hungering in the people for a good, true, honest art, though the people themselves knew not their own ailment; he saw them about him sicken and die, and they themselves thought they lived. He saw them, "the dead alive."

In verse-writing he found the poet's personal solace, but that could not reach the people. In prose he found greater freedom, the field was broader, and yet not a broad enough one in which his splendid energies could find full sway. So he made things as he felt they should be made, as the fullest extent of good service to the needs of the times.

William Morris saw that the problem of life does not mean freedom from labor, but freedom through labor. That man's pleasure in labor is measured by his opportunity to make things for use more or less beautiful, according to his capacity; for a man finds no pleasure to labor at making things ugly, as he is too often circumstanced to do under the present order of commercialistic traffic. He would have it that labor is life and not merely a means of living, and that beautifying the earth with the good and the useful combined typified man's pleasure in life.

He used beauty as a means to this great end and aim — man's happiness in work — that environment might encourage the worship of the real life, which is God.

The result of Mr. Morris's efforts has been to bring back, in some degree, into the schools of design, and from thence into the people's consciousness, the truth and beauty in like manner to the scope of the medieval workmen, thereby displacing the

maudlin imitations and impressing mixtures of the eighteenth century and the crude, meaningless conglomerate of the main part of the century just passed away.

In this he set things right for a new impetus, on this continent and his own, which has proved to be nothing less than revolutionary. He substituted for the pageant colorings of the middle ages more subtle arrangements of those same colorings suited to the pastoral characteristics of English-speaking people. Instead of the warlike, he implied the peaceful; instead of the grotesque and unlovely, he declared for beauty; instead of the spiritless and inanimate, he gloried in live, free emanation, in agreement with nature, the nature he loved; he saw no happiness for those who produced bad art, useless art, which is really not art at all, or for those who existed by its production or in company with it, any more than he found beauty, or content, or service, in the art itself. His philosophy of the relation of art to practical life sounded a new note in the history of the world, and its reverberations are melodious, clear, strong and persistent. His poetry is placed beside that of Homer and Chaucer and Browning, to his distinct advantage, and none before him have so excelled in the telling of tales. Yet his poetry and well-told tales might be swept away, or might never have been — and the world have but little lost, from his fertile yield, compared with all that would still remain. And on the other side his work as a designer or decorator — and he was the greatest of these the world has ever known — might have never been, and yet Morris and his work would have stirred the world — his art and influence would be as distinctive and great and far-reaching through his ideas of life.

It is in the province of others, better qualified for the duty, to place Morris's literature in the forefront of his accomplishments; I shall never question their right — that were presumption on my part — but that I know the aim, in his own words, of his literature was "to embody dreams in a series of pictures," I can find heart to take these other embodied dreams in these other pictures he gave to please our sense of sight and build thereon a standard best constructed around his windows, and his hangings, and his rugs, his craftsmanship, his application of nature to art, that is, his architectural work, and his designs, which I say excel all others.* . . .

He was not content to study Greek forms, or Persian forms, or Gothic forms, or any forms, as the ordinary pattern designer or architect does, for the sake of similarity of line, so dwelling on the strength of the cold form for what he may give to his own work, but he turned to the strength of the peoples, their life, their laws, their governments, their methods of manufacture and means of production, in fact, their histories, their art, their literatures, their myths; all of these gave to his patterns their subtlety and delicacy which lends to them their unstudied appearance withal.

By this disregard of sources for inspiration, in story-telling, painting and craftsmanship, he denationalized his art and made it universal. He loved the Gothic and leaned more strongly upon its principles, because, no doubt, he saw in it, as we all must, that perfect interblending of all that is honest and beautiful and useful, and this was no guesswork with him, for he was an architect.

The accomplishment of this one man can not be told in one short evening; it can not be told in weeks or years, work we ever so hard; and in speaking of Morris, it seems always the same difficulty is met with: so much more is left unsaid than said, and that which is not said is always, to the mind of the speaker, exactly what he would wish to say if he thought he could say it worthily, and no effort is commensurate when we understand what he did in compass and promise. His influence through work may be considered a creed in itself, for he made work noble when it was looked upon as degrading. His influence in his home set burning a holy flame of devotional love from the time of his building his shrine — the Red house — to the day of the harvesting, when love led him home. His influence among his fellow workers was to stimulate to constantly better achievement, and for them and for us all he sought out that art he knew should exist — his cultured and poetic consciousness so convinced him that it did exist — and he sought it out.

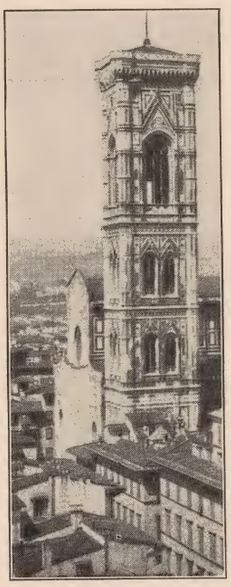
He found it not with his own people or in his own time — his people were enslaved — his time out of joint. Wherever he looked he found the same cry, "Art is dead! Art is dead!" Then, in the fulness of his great longing, he went to the fountains of other times and other peoples, and drank; so deeply did he drink that these arts and these peoples and these times became, under his masterful and earnest effort, a new art — a new influence.

He went to the Orient for his dyes and methods of making carpets, because the best specimens the world had ever seen had been made there. He followed along, step by step, past through his own Victorian period, back into those times when art was free, untrammeled by contract systems and commercial competition — when the work of men's hands bore the loving mark upon it of a life bursting with enthusiastic understanding of its meaning, its desirableness, its inherent beauty. There he lived, drinking, drinking deeply, fervently, because he had found the cradle of true art — freedom. Who says Morris was a medievalist says it to the greatest honor of the man he would deride, for in these stages of his investigations he showed his greatest courage, his greatest zeal. Not to the French period of luxury; not to the methylated Italian Renaissance; not to the dead proscribed Egyptians did he turn for his cup of joy, but to the pure sources of unsophisticated ideals of the primitive crafts did he give his untiring energies. Upon these he built, on this foundation he strove and won; with a literature pronounced "full of soft music and old, familiar charm"; with an architecture that gave an impetus to the righteous revival of the best period England has ever known, sending an influence in every land that is compared to a beacon light of example — bright and constantly beyond our grasp, that it may serve us ever as a guide and inspiration far in our advance and constantly moving on.

* A finely drawn analysis of Mr. Morris' motifs and patterns is here omitted.— EDITOR.

RAMBLES IN AND ABOUT FLORENCE.—HER ART TREASURES AND THE CAMPANILE.

BY J. E. O. PRIDMORE, ARCHITECT.

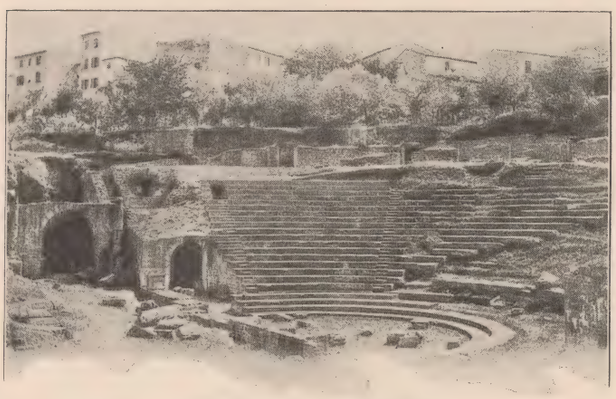


A PECULIARLY happy environment — in a broad and fertile valley edged by lovely hills clad in all the varied foliage which Italy proudly boasts — Florence has nature to thank for a charm usually lost sight of by the hurried tourist seeking out her treasures of art.

To properly appreciate these natural beauties one must take the little trip up to the mountains on the north, where the reason for Florence's mild winters is seen in its sheltered position, especially by the heights where Fiesole, the "Mother City" of Florence, keeps watch from the topmost summit. A quaint and sleepy Mother City this, with its simple little cathedral and bell tower, but of far greater interest are the ruins of its Greek theater. Recent excavations show a very well preserved auditorium, and the outlines of proscenium and stage are easily discerned. The tiers of seats on one side and at rear are all intact, and in this respect Fiesole's theater is almost as interesting as the arena at Verona, whose seating is the best preserved probably of any of these ancient playhouses. Indeed, after seeing Verona, the interior of Rome's Colosseum, where absolutely no steppings remain, is disappointing. A curious thing about many of these ancient playhouses — including Verona and Fiesole — is that the top surfaces of all stone steppings are countersunk between the joints, to avoid water standing upon them. Also the lower rows of steppings are deeper and with less rise than those above and behind, showing that the ancients studied the sight lines; and that the lower and wider seats were reserved for the nobles appears evident. At Fiesole one is able to make out a very elaborate plan of columnar treatment in front of and upon stage, the classic method of stage setting, and remarkably effective it must have been.

The orchestra pit and curtain groove are well-marked, the aisles for entrance and exit numerous and admirably planned.

The stage is placed to the north, thus allowing the sun to serve as foot and border lights to the stage. And here, as at Taormina and at Pompeii and other of the ruins we still possess of classic theaters, the architect has turned to nature for his inspiration and his setting, choosing his site in the curving depression of a hillside, conforming his plan to the natural surface of the ground, always taking advantage of grand panoramic backgrounds, the use of which has never been so thoroughly appre-



ROMAN THEATER AT FLORENCE.

ciated as by these classic builders. To me, Fiesole's Greek theater is of far greater interest than the celebrated group of medieval buildings (the Campanile, etc.) of which Florentines unduly boast.

Then, if one will see Florence from the Boboli Gardens on the south, a splendid conception will be had of the city's plan. These Boboli, the queen of all the world's great gardens — for not even Versailles, with the wealth of historic interest centering in its stately groves and wondrous statues, nor even Mr. Vanderbilt's "Biltmore," that combination of man's wealth and wisdom with nature's most romantic setting — neither of these can compare with the exquisite vistas, the magnificent embankments, the grand sweeping lines of the Boboli Gardens. Nearest to them in grandeur are the Pincian Gardens, in Rome, which, although less extensive, have an advantage in their more tropical foliage.

But, as the birthplace of M. Angelo, of Duomo and of Galileo, Florence is famous in art, in literature and in science. The houses are still preserved where these great men lived. Dante was born in a tall, narrow brick building upon a street barely ten feet wide, where the heavily projecting cornices almost meet above, to shut out the already stinted light.

The massive square but plain four-story building which was M. Angelo's home stands upon a corner and is now conserved as a museum in memory of the great master. And in the unpretentious, almost barnlike interior of the church of S. Croce you may see the tombs of these great men.

Here they rest between the rough brick columns and under a common timber roof. It is solemn and peaceful, or was until an unthinking Englishman with too much money spent it in a new west front, which is a nightmare of black and white stripes; it not only emulates but outdoes Giotto and his campanile, of which more anon.

Florence is par excellence a storehouse of great paintings and sculptures, and her Giotto and Ghirlandaio frescoes are world-famed. But in architecture she disappoints, because she has nothing of artistic merit to compare with her treasures of the allied arts, contained in her four great galleries, the Pitti and Uffizi Palaces, Academy of Fine Arts and National Museum. In sculpture her Venus de Medici, that masterpiece of an unknown Greek artist, supposed, however, to be a study from the Capitoline Venus now in Rome, is undoubtedly first, as an embodiment of feminine grace and beauty, among all the world's famous statues of the Goddess of Charms. At the Louvre, in Paris, you may see the Milo Venus, which is usually classed with the Medici; but for comparison's sake the next time you are in Paris be sure and visit the grand hall of statuary in the Ecole des Beaux Arts, where one may see grouped together casts of the half-dozen celebrated statues of Venus bequeathed to us by old Greece.

It was most interesting to find all these grand ladies in company after having run across them separately in the Italian cities. Rome's pride, the Capitoline Venus, so big and statuesque the Milo looks puny beside her. This same Venus de Milo, by the way, which an unappreciative American critic has described as "coarse and misshapen, as if by the overeating of carrots." An absurd libel of course, and yet when comparison was possible between this superb beauty and the finer more patrician type of the Medici, it leaves the Venus de Medici of Florence supreme over all.

Of the same exquisite type are the Calipygean Venus of Naples, and the Kneeling Venus. But to return to Florence and her masterpieces in the Tribuna of the Uffizi Gallery — for besides the Medici, there are here contained the Greek Wrestlers, the Dancing Faun, the Knife Sharpener and the Apollino; I should say that no one room in the galleries of Europe contains treasures to equal these. In medieval sculpture there is M. Angelo's David, criticized as having too large a head, while the great master's Moses in Rome is said to be deficient in that part of the anatomy (I suppose even M. Angelo could not discover a happy medium to suit all). The Tombs of the Medici, one of M. Angelo's masterpieces; the glorius sculptures of Giovanni of Bologna, his Mercury, Venus, and Rape of the Sabines, and Sansovino's wonderful statue of Bacchus. Although all the great masters have essayed this subject, Sansovino's sculpture remains the grandest of all, infinitely superior to the mediocre Bacchus of M. Angelo, which stands in the same gallery in Florence.

And what riches Florence boasts in her paintings. Besides the multitude of Peruginos, Ghirlandhaios and Fra Angelicos; to single out Botticelli's "Primavera," that wonderful departure, the herald of soft coloring and graceful lines, and not far removed from the fascination of the modern French school.

Then there are the Titian and Raphael masterpieces, the for-

TOMB OF MICHAEL ANGELO.

mer with "La Bella," "Magdalen" and "Flora," and "Philip II. of Spain," and Raphael with the "Madonna del Granducca," in beauty of expression far superior to the Vatican's much-vaunted other Madonna of Raphael, the "Foligno." In fresco painting the grand works of Giotto in S. Croce, which stand perhaps without

an equal in some respects — of course excepting M. Angelo's "Last Judgment" and Raphael's "Stanza," in the Vatican at Rome. When one contemplates these and other of the great artistic treasures and then turns to Florence for her architecture, expectation is sure to be disappointed. The interest which attaches to her celebrated triumvirate — the Campanile, Duomo and Baptistry — is an interest born of curiosity rather than admiration.

REINFORCED CONCRETE AS A FIRE-PROOFING MATERIAL.

THERE are few if any materials used in the construction of buildings which have had as rapid development as fireproofing or whose effect upon design has been as far-reaching. The modern fireproof building, with its steel frame, which has enabled it to rise to heights which but a few years ago would not have been considered feasible, has been the product of men who are still young in their profession, and what they may yet accomplish in the development of this monument of modern ingenuity can only be surmised.

One of the two principal features entering into these great building enterprises is the structural steel, which makes it possible to carry the great loads of the many stories with economy of space. The other feature is the fireproof protection of this steel, without which it would be too dangerous to erect such high structures. After the application of structural steel in the form of skeleton construction for buildings, the need for fireproofing became so great as to stimulate a rapid development of this feature of building. It was soon found to be so practical and of such great value that it is applied now to buildings of all conditions, heights and classifications. The cost of this construction has been so reduced in its development, and its excellency and thoroughness so improved that the present owner does not contemplate a building of any pretensions without attempting to supply the small additional investment necessary to make it fireproof.

Concrete in many forms has been introduced with other materials for the purpose of fireproof construction. Although not the first material introduced, its development and adoption has probably been the most rapid. The excellent quality of concrete as a fireproofing material has been thoroughly demonstrated by numerous tests made by various interested parties among architects and building departments, also by numerous fires occurring in buildings in which the material has been used. Notable among those tests in the first class were tests made by the New York building department in 1897, and which were fully reported in technical papers at that time. These tests did much to establish confidence in this material. Among tests of actual construction is the Iroquois Theater, which so lately has been the scene of one of the most disastrous fires in history. This building was fireproofed with cinder concrete construction by the Roebling Construction Company. There raged in this building as hot a fire as it is possible to have where the structure itself is not of combustible material.

The construction of the theater makes it possible to bring together on the stage and in the scenic tower great quantities of highly combustible scenery and curtains, and it is hardly probable that any class of fireproof buildings furnishes an opportunity for as hot a fire as does the stage of a theater when stored with the necessary equipment for a stupendous spectacular production such as "Mr. Bluebeard." That it was possible to consume this mass of oil and scenery without injury to the fireproof construction in the fly galleries and dressing-rooms is proof that the material is of the highest quality for fire-resisting purposes.

The first form of concrete construction to be installed was the segmental arch, for which stone concrete was used. It was sprung from the lower flanges of the beams without the use of any reinforcing rods. This construction, when extended under the soffits, left little to be desired from the point of fire resistance and strength, but its weight and cost are objectionable. This form of arch should have 1½ inches rise per foot of span between the beams with a thickness at crown of not less than 3 inches. Another type of segmental construction was the use of corrugated iron which had been properly curved to form the centering. This construction was used quite extensively and is found in many of the older fireproof buildings. This form is objectionable, as a serious fire would probably expand the corrugated iron so as to affect the strength of the floor, but it considerably reduces the weight as cinder concrete is introduced. The best type of the segmental arch contains embedded rods which reinforce the concrete and enable the use of cinder concrete, and a reduction of the necessary rise per foot of span; the rise may, by the use of rod, be made as small as 1 inch per foot of span and insure good results. Cinder concrete forms the best material to be used with this type. A strength of 2,000 pounds per square foot can be obtained by careful design of the arch and mixture of the concrete; care should be taken that a well-known brand of portland cement is used or special tests should be made to determine its fitness. The sand should be coarse and sharp, free from all indications of clay, which material affects the strength of the cement. The cinders should be free from powdery ashes. The fine, sharp, gritty cinders are not objectionable, but where it occurs in considerable quantity it should be considered as acting in the same capacity as sand, so the quantity of sand used may be reduced and this fine cinder substituted. Either soft or hard coal cinders can be used. A very satisfactory mix for ordinary purposes is one part, by measure, of cement, three parts of sand and six parts cinders. The mixing of this concrete is an important factor and should be given careful inspection. If proper attention is given by the architect's superintendent to seeing that the proper quantity of cement is used and that it is properly mixed, satisfactory and uniform results will be assured.

A. I. A. SCHEDULE OF CHARGES.

REVISED AT CLEVELAND CONVENTION, OCTOBER, 1903.
AMERICAN INSTITUTE OF ARCHITECTS.
PROFESSIONAL PRACTICE OF ARCHITECTS, AND SCHEDULE OF USUAL AND PROPER MINIMUM CHARGES.

The architect's professional services consist in making the necessary preliminary studies, working drawings, specifications, large scale and full size details, and in the general direction and supervision of the work, for which the minimum charge is five per cent upon the cost of the work.

For new buildings, costing less than $10,000, and for furniture, monuments, decorative and cabinet work, it is usual and proper to charge a special fee in excess of the above.

For alterations and additions to existing buildings, the fee is ten per cent upon the cost of the work.

Consultation fees for professional advice are to be paid in proportion to the importance of the questions involved.

None of the charges above enumerated covers alterations and additions to contracts, drawings and specifications, nor professional or legal services incidental to negotiations for site, disputed party walls, right of light, measurement of work, or failure of contractors. When such services become necessary, they shall be charged for according to the time and trouble involved.

Where heating, ventilating, mechanical, electrical and sanitary problems in a building are of such a nature as to require the assistance of a specialist, the owner is to pay for such assistance. Chemical and mechanical tests, when required, are to be paid for by the owner.

Necessary traveling expenses are to be paid by the owner.

Drawings and specifications, as instruments of service, are the property of the architect.

The architect's payments are due as his work progresses in the following order: Upon completion of the preliminary sketches, one-fifth of the entire fee; upon completion of working drawings and specifications, two-fifths; the remaining two-fifths being due from time to time in proportion to the amount of work done by the architect in his office and at the building.

Until an actual estimate is received, the charges are based upon the proposed cost of the work, and payments are received as instalments of the entire fee, which is based upon the actual cost to the owner of the building or other work, when completed, including all fixtures necessary to render it fit for occupation. The architect is entitled to extra compensation for furniture or other articles purchased under his direction.

If any material or work used in the construction of the building be already upon the ground or come into the owner's possession without expense to him, its value is to be added to the sum actually expended upon the building before the architect's commission is computed.

In case of the abandonment or suspension of the work, the basis of settlement is as follows: Preliminary studies, a fee in accordance with the character and magnitude of the work; preliminary studies, working drawings and specifications, three-fifths of the fee for complete services.

The supervision of an architect (as distinguished from the continuous personal superintendence which may be secured by the employment of a clerk of the works) means such inspection by the architect, or his deputy, of work in studios and shops, or of a building or other work in process of erection, completion or alteration, as he finds necessary to ascertain whether it is being executed in conformity with his drawings and specifications or directions. He is to act in constructive emergencies, to order necessary changes and to define the true intent and meaning of the drawings and specifications, and he has authority to stop the progress of the work and order its removal when not in accordance with them.

On buildings where the constant services of a superintendent are required, a clerk of the works shall be employed by the architect at the owner's expense.

As revised at Cleveland convention, October, 1903.

GLENN BROWN, *Secretary, A. I. A.*,
The Octagon, Washington, D. C.

OUR ILLUSTRATIONS.

Floor Plans, Iroquois Theater, Chicago. Benj. H. Marshall, architect.

Residence of J. J. Tootle, St. Joseph, Missouri. Eckel & Mann, architects.

Furniture designed and made by William Morris, accompanying paper by Joseph Twyman.

Kansas City Casino, World's Fair, St. Louis, 1904. Van Brunt & Howe, architects, Kansas City.

California Building, World's Fair, St. Louis, 1904. Newson & Newson, architects, San Francisco. California's pavilion is a replica of "La Rabida," an old mission building in the southern part of the State. The area covered is about 100 by 140 feet. The plans show the big, arcaded cloisters, which are a marked characteristic of the California mission buildings. Running from either side of this towering construction is a lower building, two stories high, with an arcade and cloister on each floor. The arcade on the lower floor has semi-circular arches, while on the upper a solid entablature forms square openings in front of the cloister. The arcades and cloisters surround the buildings on three sides on two floors, supplying a cool promenade 11 feet wide. The plans submitted show the arrangement of the two floors of the structure. The wings on either side are given up to offices and utility rooms, while the central portion on the lower floor has a large assembly hall, 48 by 48 feet, lighted from above, and a big exhibition hall back of this apartment. This hall, which is 48 by 25 feet, has a big, movable platform at one end, and is intended to house the displays which will be maintained by California in its State pavilion. On the second floor of the building, above the assembly hall, is a roof garden, where California plants will supply shade for visitors. The assembly hall runs through two floors and is surrounded on the second floor by a gallery, from which

the functions to be held in the hall may be viewed by those who do not participate. The roof of this hall has a skylight.

The Missouri State Building, World's Fair, St. Louis, 1904. Estimate of cost: Building proper, $141,600; refrigerating plant, $20,000; sculpture, $15,000; electric fountain gushing ice water, $3,000; mural decorations, $5,000. "Roman architecture with an American feeling," is the way in which Mr. Isaac S. Taylor, architect of the Missouri State Building at the Louisiana Purchase Exposition, describes the style of architecture of that structure. Missouri's building consists of three monumental masses connected by balconied links; the center mass, dome-crowned and towering, and profusely decorated with sculpture. The dome, a perfect hemisphere, unembellished by a single rib or molding, is to be gilded and crowned by a Winged Victory. A beautiful colonnade of coupled Corinthian columns, each couple of columns crowned with a seated figure, will surround the drum of the dome. This construction will surmount the central mass, at each corner of which will be a gigantic sculptured group symbolical of the arts of peace: Music, Literature, Art and Architecture. The building is to be 312 feet long and 160 feet wide. It will be completely surrounded on two floors by balconies and porches which will supply an uninterrupted promenade about the building at two levels, one thirty feet above the other, and will furnish a view of the Exposition from all sides. As the building stands on an elevation behind the Government Building, a spectator on the balconies will obtain a fine view of the main picture of the Fair. Another similar promenade, 15 feet wide, will surround the dome at its base, 130 feet above the Exposition grounds. A monumental stairway, 45 feet wide, in four terraced flights, continuing the axis of the Government Building, will lead up to the main entrance of the Missouri Building. On either side of this entrance will be large single figures allegorical of Beauty and Strength. On the attic of the entrance will be the word "Missouri," flanked by the coat-of-arms of the State — a quartered shield supported by two bears, with the motto *"Salus Populi Suprema Lex Esto."* The visitor entering the building will find himself in a gigantic rotunda 76 by 76 feet, the roof of which will be the frescoed soffit of the dome. An electric fountain in the center of this rotunda will spurt water artificially cooled, which will cool the surrounding spaces to an agreeable temperature on the hottest day. At a semi-circular desk at one end of this rotunda the host of the Missouri Building will be always waiting like a clerk in a hotel to welcome the visitor. Passing through the rotunda the visitor will reach the Hall of State in a wing at the southern side of the building. This auditorium will be 50 by 75 feet, exclusive of the rostrum, and 40 feet high, with seating accommodations for nearly 1,000 persons. The masses which flank the central mass will contain exhibit halls extending from floor to ceiling, with an observation gallery surrounding them on four sides. These exhibit halls, which contain 5,000 square feet of floor space, will be top-lighted. The Governor's suite will be on the first floor — the southern rooms, in the western connecting link. The western balconied link will, on the second floor, contain the commissioners' rooms, together with a comfortable parlor for the use of the commissioners. The eastern balconied link will, on the second floor, contain the hospital and créche, and retiring room for women, where they may have the services of nurses and a matron. On the lower floor every convenience which has been mentioned by any state commission up to the present time will be offered the visitors — postoffice, checkroom, register desk, information bureau, toilet and lavatory conveniences, etc.

Education Building, World's Fair, St. Louis, 1904. The Education Building of the Louisiana Purchase Exposition is of the Corinthian order of architecture. It is situated to the left of the main lagoon, and this and the Electricity Building are the only two buildings facing the Grand Basin with the cascades and approaches to the terrace crowning the hill on which the Art Building stands. While not the largest in area, its position makes it one of the most conspicuous buildings in what has been called the main picture of the Exposition. Eames & Young, of St. Louis, are the architects of the structure. The building fronts 525 feet on the main thoroughfare of the Exposition. The principal entrances are on the axes of the building, and somewhat resemble the well-known form of the triumphal arch. At each angle of the building is a pavilion, forming a supplementary entrance, and these are connected by a colonnade of monumental proportions. The four elevations are similar in character, varying only as required to accommodate the design to the irregular shape of the ground plan. The interior court follows the general outline of the building in form and style, and is laid out in the form of a plaisance or garden of a formal type. It is also suggested that this building, the roof of which is practically on a level with the terrace of the Art Building, could be successfully utilized as a promenade, with a roof garden and restaurant attachment.

Electricity Building, World's Fair, St. Louis, 1904. The structure was planned by Walker & Kimball, architects, of Boston and Omaha, who were chief architects of the Omaha Exposition. It is located on the main central avenue and forms one of the leading elements of the main Exposition picture. It has a frontage of 650 feet toward the north and 525 feet toward the east, facing the main lagoon. The design is a bold columnated treatment of the Corinthian order. The columns are carried well down toward the ground, to give height to the façades. The latter are well accentuated by elevated pediments and tower effects over the four main entrances and at the corners. Over the accentuated places, as well as over the twin columns, which form a pleasing variation of the treatment of the façades, opportunity for ample sculptural decoration is supplied. The fenestration is bold and appropriate, giving ample light and substantial wall treatment. On two sides of the building are loggias which add pleasing effects of light and shadow. There are numerous openings on the façades, such as exhibitors always seek in selecting their exhibit space. The plan of the building is simple and well treated, showing an effort to supply as much exhibit space as is possible with the 292,000 square feet of floor space. The exhibit space is compact and symmetrical. An extensive balcony sweeps around four sides of the building, supplying 100,000 square feet of additional space. A tremendous traveling crane, to be used in the installation of the big electrical machinery which is to be shown in the building, will run on tracks in the western bay. Two big toilet-rooms are to be located in the court of the building. The doors of the building are of gigantic dimensions, 11 by 18 feet. The structure has 176 trusses, the largest span being 82 feet in length. One hundred and eighty-five tons of iron and steel were used.

Machinery Building, World's Fair, St. Louis, 1904. The building's main dimensions are 525 feet by 1,000 feet. It is served by a gigantic traveling crane, and by two tracks of railway running through the building from east to west. The ground allotted for the building is of peculiar shape, namely, a large parallelogram with a huge corner piece cut out of the southeast angle. Widmann, Walsh & Boisselier, of St. Louis, the architects, have furnished the following statement in regard to the structure: "In a building of this immense magnitude, it behooves the designer to apply symmetrical treatment whenever feasible, and we have, therefore, designed the four façades subservient to this principle. In the south front toward the hill, the main entrance shows a triple arcade with flanking pavilions in the center. The north front of 1,000 feet has an arcade of seven arches as a center feature. The two axes of these central features are 160 feet apart, and in our ground plan we have formed on each of these axes a cross-aisle and nave of eighty feet in width. These two aisles are connected by a lower room with lantern light above. The east façade shows a comparatively low building centered by two gables and smaller entrance feature. The reëntering angle on the southwest corner is very interesting in its development. The other corner features are each made with a triumphal arch entrance taken from the principal motif, with two of the principal pavilions in the line of the façades. As a landmark we have used two large towers, raised in the center of the immense main aisle of the structure, and immediately back of the large arcade feature of the north façade. The towers are safely built upon massive piers and form a magnificent corner-turning feature in the general complex of exposition buildings, the Machinery Building being the end one of the main group. The plan has been arranged with special reference to the admission of daylight, which enters, through clerestory windows, all the principal aisles. These windows afford ample ventilation and are intended to be readily accessible for opening. The axial measurement of unit in the building is 20 feet, and the width of the various aisles are multiples of this unit, being 40, 60 and 80 feet wide, respectively. The main aisles are 65 feet in height, and the secondary aisles 30 feet, affording an abundance of clerestory light. The construction of the building is of the simplest and least expensive kind, and is to be covered on the outer side with staff, with enriched spandrels and other ornamental features, and surmounted by occasional sculpture groups where desired." This building houses the Exposition power plant, the largest power plant ever shown as an exhibit, and just west of it is the boiler-house. The structure was erected by the Smith & Eastman Co. The Machinery Building will contain exhibits collected by the Department of Machinery, of which Mr. Thomas Moore is the chief.

Rhode Island Building, World's Fair, St. Louis, 1904. All the details of the Rhode Island Building are similar in design to portions of colonial Rhode Island architecture. The main staircase will have mahogany rails and posts and old ivory finished post balusters, treads and trimmings. To the right of the reception hall will be a writing-room, and to the rear of the writing-room the women's parlor, both provided with large, open fireplaces with gas logs to burn natural gas, and the mantels are to be exact copies of some old colonial mantels. To the left of the hall will be the information-room, with space for storage of parcels, information desk, long-distance telephone booth and drinking-water fountains. To the rear of this room is to be the smoking-room, and adjoining it the private office of the commission. The second floor will have a state or executive room, 20 by 30 feet, a reading-room 16 by 17 feet 6 inches, with a bathroom for each two rooms. All rooms on the first and second floors will open direct to the porches and balconies through glass sash doors. The flat roof is to be covered with canvas and used for a roof garden.

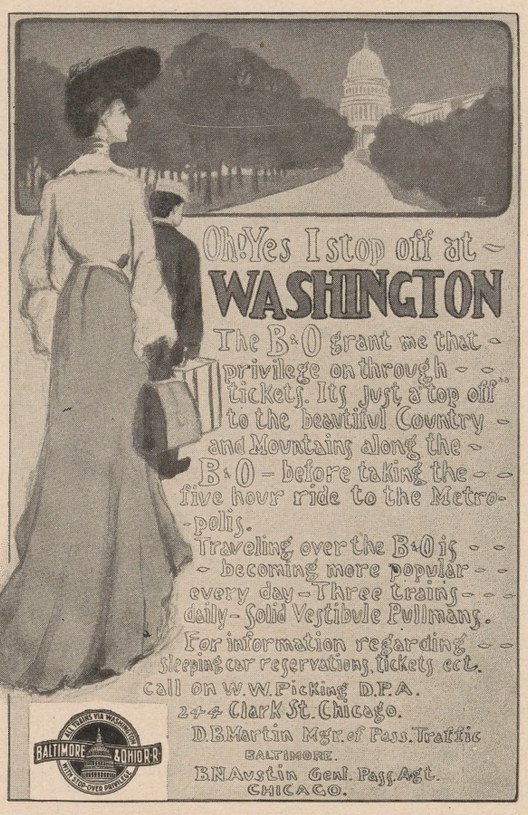
Photogravure Plate: Residence at New York. Grosvenor Atterburry, architect.

PHOTOGRAVURE PLATES.

Issued only with the Photogravure Edition.

Hanover Building, New York city. J. B. Barker, architect. The following full-page plates are given: The Façade; Lower Stories; Detail of East Front.

Eldorado Apartment Building, New York. Neville & Bagge, architects. The following full-page views are given: View in Lobby; Interior View; Entrance Detail; General View.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Vol. XLII. ADVERTISERS' TRADE SUPPLEMENT. No. 6

UNIQUE MECHANICAL DRAFT PLANT FOR ST. LOUIS FAIR USE.

The mechanical draft feature of the Union Electric Light & Power Company's plant, which will be used for lighting the World's Fair grounds at St. Louis, will be an installation of unusual interest to engineers. The plant is to be equipped with both forced and induced draft apparatus, which is unusual. A mechanical draft plant usually is either of the forced or induced draft type, but in this case both will be used. There will be twenty-six boilers of seven hundred horse-power each, and will be equipped with automatic stokers. Fans will be used for the forced draft, and the boilers will also be operated under induced draft. The forced draft fans will be four in number, of the full housing type, size one hundred and sixty inches. They will be driven by 10 by 10 vertical engines, direct attached. The induced draft fans will be two in number, of a size quite in keeping with the basis upon which the exposition is being built, the wheel diameters being so large as to be seldom met with in mechanical draft engineering. Each of the induced draft fans will be of the full housing type, size two hundred and thirty inches, and will be driven by 9 by 10, double-cylinder, double-acting, upright engines, this type being selected to secure the maximum power in limited space. The Buffalo Forge Company is building all the fans and engines for the above equipment.

THE NEW FIRE EXTINGUISHER.

THE YANTACAW MACHINE PROMISES TO REVOLUTIONIZE THE METHOD OF FIRE-EXTINGUISHING BUSINESS.

An illustration of the interest in fire extinguishers was furnished recently by a large throng of people who gathered to witness a test of the Yantacaw Chemical Fire Extinguisher. In the throng were gentlemen interested practically in the subject of extinguishing fire. The test was a severe one, and was arranged in compliance with the suggestion of a man who has devoted his life to fighting fire. Seven or eight barrels were arranged in pyramid fashion, after being saturated with tar, oil and other chemicals to make them flamable. These barrels were strongly riveted, and at the base a quantity of paper was placed. At a given signal a torch was applied, and almost quicker than it takes to tell it there shot from under and around and out of the barrels tongues of flame, increasing in intensity. It seemed as though no power could save the barrels from utter and complete destruction.

Within a dozen feet of the barrels there was placed a Yantacaw Chemical Fire Extinguisher, properly equipped with hose, etc., to fight the fire. At another given signal the stream was shot right into the heart of the flames, the attendant with the nozzle moving directly up to the barrels. Every movement was carefully watched by the onlookers, particularly the experts who were there to witness this test of the new fire-fighting machine. Watches were drawn to time the work of extinguishing the fire. With amazing rapidity the flames were, in the language of an old fire-fighter made to the *Press* representative who witnessed the test and exhibition, "literally eaten up," and in a couple of minutes clouds of black smoke took the place of the seething mass of flame, and the barrels were rolled over on their sides. It seemed after the hose was directed to the heart of the blaze the response was immediate.

The onlookers pronounced the test a very severe one and the result very satisfactory.

A VALUABLE COVERING.

The production of heat and power, and the most economical use of it, is of special interest to builders at the present price of coal. One method of solution is to be found in the covering selected. Of the many kinds now on the market probably none are more economical or give greater satisfaction than Eighty-five Per Cent Magnesia, manufactured by the Keasbey & Mattison Company at their mills in Ambler, Pennsylvania.

Used in various forms and for all purposes where a substantial covering is required, magnesia seems to meet every test. This new article of commerce is absolutely fireproof, and, at the same time, has excellent non-heat-conducting qualities. While useful and valuable as a covering for steam pipes and boilers, it has a far wider use in the line of building lumber, and as such is utilized in window frames, doors, partitions, sheaving, shingles and weatherboarding.

Magnesia Building Lumber is composed of the natural fibers of magnesium silicate carefully felted together through the employment of intricate machinery designed for the purpose, and these felted fibers then thoroughly cemented through an artificially created magnesium silicate being crystallized within, upon and around the natural fireproof fibers employed in making the felt.

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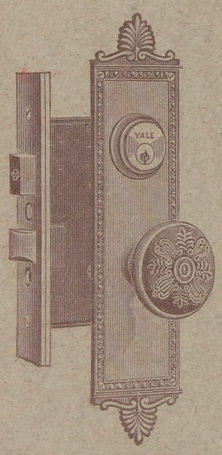

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